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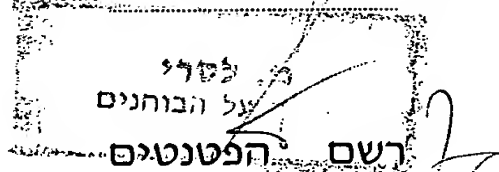
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A DEVICE, SYSTEM AND METHOD FOR REMOTE PUSH-PUBLISHING OF CONTENT ONTO DISPLAY
SCREENS OF MOBILE DEVICES INCLUDING A SCREEN SAVER APPLICATION (באנגלית)
(English)

Hereby apply for a patent to be granted to me in respect thereof

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* בקשת חלוקה - Application of Division	* בקשת פטנט מוסף - Application for Patent Addition	* דין קדימה Priority דרישה Claim		
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A DEVICE, SYSTEM AND METHOD FOR
REMOTE PUSH - PUBLISHING OF
CONTENT ONTO DISPLAY SCREENS OF
MOBILE DEVICES INCLUDING A
SCREEN SAVER APPLICATION

FIELD OF THE INVENTION

The present invention relates to devices having data displays in general and, in particular, to a screen saver system for devices having data displays, such as cellular
5 telephones and other mobile devices.

BACKGROUND OF THE INVENTION

Many different types of devices having data displays are known for a variety of uses. Some of these, such as televisions, include screens which display data of
10 interest to a user at all times, so that whenever the device is turned on, the purpose is to watch the screen. However, many other such devices include screens which are capable of displaying data but whose primary use is not for visual purposes and the devices are not in use all of the time. Examples include pagers, personal digital
15 assistants (PDA), one way or two way radios and cellular telephones, wherein the device often remains on while the user has no reason to watch the screen for particular data.

Screen saver applications for personal computers have long been known. These were first introduced in order to change the display on the screen after a pre-selected period of time of non use by the user has been detected by the computer,
20 in order to protect the screen from damage. Thus, the term "screen saver" literally meant a software application installed in the personal computer whereby visual displays of a picture or series of pictures or writings with or without pictures continuously changing were presented on the screen so as to save it from harm. As screen design improved and changed over the years, this function was no longer
25 critically required. Personal computers are still utilizing screen saver applications which permit the display of series of pictures on the screen for the enjoyment of the user, during the idle mode of the computer, after a pre-selected period of time of non use by the user has been detected by the computer. Thus, the current usage of the term "screen saver" refers generally to a software application for displaying any data
30 on a screen of a mobile device when the screen or the device are not in active use.

Cellular telephones include a display which is used today as the user interface and for displaying alphanumeric data (caller ID, SMS (Short Messages Service), etc.) and network and terminal status (battery, signal strength, etc.).

At present, the data displayed on the screens of mobile devices, including
5 cellular telephones, while in a standby/idle mode is set by the manufacturer and is limited to battery status and network related information. The operator can insert his name/logo on the display, as well, but the display does not change with time, except for battery, signal strength and other network related information.

Other mobile devices having visual display capability according to different
10 standards, including cellular phones have display screens which can be utilized in an active mode to view data stored in or received by the device, but which also have an idle mode when no data has been selected for viewing. However, these devices presently do not include a screen saver application.

GSM (Global Systems for Mobiles) devices include a SIM (Subscriber
15 Identity Module) which contains information related to the device's owner and permits the mobile operator to identify the user. SIM can be programmed using a development environment called SIM Toolkit (STK). A SIM Toolkit Application (software) can be downloaded into a SIM which is inserted in a mobile device and permits the alteration of services provided to individual devices, and the
20 personalization of the SIM services in each user's device. SIM Toolkit Applications can be add or modified and activated remotely, using OTA (Over The Air) technologies or locally at the mobile operator's Points Of Sale (POS), so as to support additional functions of these devices which are SIM Toolkit compliant.

25

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a data display for broadcasting and displaying on the display screens of a plurality of mobile devices including display screens, screen saver application and capable of being in an idle mode. In particular, it is desired to provide remote controlled screen saver content to

be pushed onto the display screens of such devices while the devices or their display screens are in the idle mode.

According to the present invention, there is provided a mobile device having a display screen, the mobile device comprising a screen saver application, and said
5 mobile device or its display screen are capable of being in an idle mode.

According to another preferred embodiment there is provided a data display content received from content providers and selected for display on display screens of a plurality of mobile including a screen saver application, the mobile devices and their display screens are capable of being in an idle mode.

10 According to preferred embodiments of the present invention, said mobile devices are cellular telephones, GSM mobile devices or GSM cellular telephones.

According to a preferred embodiment the selected content is associated with a certain geographic location and broadcast substantially within said location.

There is provided according to yet another embodiment of the invention, a
15 system for providing a data display to a plurality of mobile devices including a display screen and a screen saver application, said mobile devices and their screens are capable of being in an idle mode, the system comprising a server including means for selecting content to be displayed on said display screens and a mobile operator coupled to said server for broadcasting said selected content to said mobile devices.

20 According to preferred embodiments of the present invention, said mobile devices are cellular telephones, GSM mobile devices or GSM cellular telephones and said mobile operator is arranged to broadcast said selected content to the mobile devices, cellular telephones, GSM mobile devices or GSM cellular telephones.

According to another preferred embodiment of the present invention, the
25 system further comprises content for broadcast received from at least one content provider.

According to yet another preferred embodiment of the present invention, the system further comprises software for administrating, operating, controlling and monitoring the system.

According to a preferred embodiment of the system described in the present invention, at least one of said software includes Internet/Intranet based publisher client coupled to said server over the Internet/Intranet.

5 According to yet another preferred embodiment of the present invention, the system further includes means for associating a certain geographic location with a certain content to be displayed. There is also provided according to the present invention a method for controlling a data display on display screens in a plurality of mobile devices including a screen saver application, said mobile devices and their screens are capable of being in an idle mode, the method including the steps of
10 broadcasting selected data display content and causing said content to be displayed on said display screens of said plurality of mobile devices only while said devices or their display screens are in the idle mode.

According to one embodiment of the invention, the method further including the step of selecting content for display on said display screens of said mobile
15 devices before the step of broadcasting..

According to yet another preferred embodiment, the method includes the steps of selecting content for display on said GSM mobile devices, broadcasting said content over an active Cell Broadcast (CB) channel and causing said content to be displayed on said GSM mobile devices while in said idle mode.

20 The method according to another embodiment of the invention, further comprises the steps of remotely activating a Cell Broadcast feature in said GSM mobile devices, remotely selecting an active Cell Broadcast channel, remotely installing a routine for temporarily disabling content presentation by the Cell Broadcast upon entering of said GSM mobile devices or their display screens into an
25 active mode and, pushing selected content over said active Cell Broadcast channel for display on the display screens of said GSM mobile devices.

The method according to yet another embodiment, further comprising the step of providing interactive response codes in said selected content so as to permit two-way communication over said GSM mobile devices.

According to another embodiment of the present invention, the method further includes the step of selecting content to be displayed according to a geographical location of said GSM mobile devices and broadcast substantially within said location. .

5 According to yet another embodiment of the invention, the method, further includes using STK application.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be further understood and appreciated from the following detailed description taken in conjunction with the drawings in which:

5 Fig. 1 is a schematic diagram illustration of the system according to one embodiment of the present invention;

 Fig. 2 is a block diagram illustration of the system according to an alternative embodiment of the present invention; and

10 Fig. 3 is a schematic flow chart indicating the handset setup process according to an alternative embodiment of the present invention.

 Fig. 4 is a schematic flow chart indicating the operation of the system according to an alternative embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a screen saver system for mobile devices having display screens with idle and active modes, and a method which can be used for push publishing content, messages and advertisements broadcast, for display on the screen of the mobile device by the screen saver application, only when the mobile device or its display screen are in the idle mode. Generally, mobile devices can be in one of three modes: active, idle or off. In the active mode, the device is used by the user for any of the functions of the device, e.g. communication, configuration, address book management, SMS, etc. In the idle mode, while the device is on, none of the functions of the active mode are being used. In the off mode, the device is not operational in any way. According to one embodiment, the invention relates to a new value-added service for users of any mobile device having a display screen with an idle mode and a screen saver application, including cellular and GSM mobile telephones, which are able to receive data messages

More particularly, the invention relates to a wireless data application used by mobile operators, or its trusted third parties, to display continuous, real-time content directly on users' display screens of subscribers' handsets having a screen saver application, while in the idle mode. Users need not subscribe to this system, nor need they manage their handset's memory. Thus, the system provides content/information for display on the screen of mobile devices having an idle mode and a screen saver application, without interfering with the user's normal usage. According to one embodiment of the invention, the real-time content displayed on the display screens can be arranged so as to stimulate users to react, thereby creating a two-way personal communication channel between the content providers and the users.

For ease of description, the invention will be described hereinbelow with regard to GSM mobile telephones, as a non-limiting example of a suitable mobile device. However, it will be appreciated that the invention is also applicable to any mobile device having a display screen, including PDA's, portable email terminals, 1 way and 2 way pagers, 1 way and 2 way radios etc., as well as to any other mobile

devices having display screens with an idle mode and a screen saver application, including Internet Protocol (IP) related devices.

Screen saver application for PC, as known, is a standard software application. The screen saver application of the present invention is a software arranged for
5 detecting an idle mode of the mobile device or (of its display screen), checking if a pre-selected or pre-set period of time has elapsed and when it does, receiving current broadcast of screen saver content. The screen saver application can be stored in a storage unit in the mobile device, such as a ROM, RAM, hard disk, etc. In GSM mobile devices the screen saver application can be stored in the SIM card. According
10 to a preferred embodiment of the present invention, the central processor or other processor of the mobile device utilizes the screen saver application for detecting the idle mode and once a pre-selected or pre-set period of time has elapsed, receiving the current screen saver content from broadcast and displaying it on the display screen. The screen saver application can be installed in the mobile device by the
15 manufacturer of the device or by the mobile operator. In particular, the screen saver application can be installed in a GSM mobile device by the mobile device manufacturer, the SIM manufacturer or by the mobile operator or by use of OTA technologies.

The system of the present invention is a computer based system enabling a
20 mobile operator to remotely control the displays of its subscribers' devices utilizing a screen saver application. It operates in a similar way to a Personal Computer (PC) screen saver with two major differences: (1) the mobile operator (or a trusted third party) remotely determines and changes the content for display on the screens of the mobile devices utilizing the screen saver application, at any time and (2) no
25 communication circuit between the device and the network need be established by the subscriber. Real time information can be displayed directly on the screens of all users' devices (multicast), depending on their geographical location. The content can be displayed continuously, with new messages replacing the previous ones every pre-defined period of time. The content can be location specific or can be sent to
30 selected groups of users, as desired.

The mobile operator runs the system of the present invention and controls the display text displayed on its users' display screens while the devices are in the idle mode, by broadcasting continuously displayed content to the mobile devices, utilizing the screen saver application. The value added content displayed encourages the user to react to it, for example, by pushing *OK/send*, which can activate a call-back directly to the content provider's call centers, or just pushing a key on the handset, to confirm that the message went through and was received or stored for further review. Thus, the present system is a push medium which can be used for both conveying a message and establishing contact between the users and the content providers.

Referring now to Fig. 1, there is shown a schematic diagram illustration of the screen saver system according to one embodiment of the present invention. The system includes an application server 20 coupled to the mobile operator's switch 22. The system is operative where the system's application server 20 is coupled via switch 22 for transmitting via a plurality of base stations 24, to a plurality of mobile devices 26 having display screens which have an idle mode and a screen saver application. The system broadcasts content received from at least one content provider 28 with or without any need for subscription or further activation by the user. Together with the application server there is provided a plurality of clients' software 30 for administrating, operating, controlling and monitoring the screen saver system of the present invention. At least one of the client software is an Internet/Intranet based publisher client 32 coupled to application server 20 over the Internet/Intranet.

It is a particular feature of the present invention that the content/information appears on the screens of the mobile devices only when the device is in the idle mode, and disappears as soon as the device enters the active mode or is turned off. Thus, the screen saver content will disappear when an incoming call, SMS etc., is received, or the user pushed any of the device buttons, except for the buttons assigned for response, etc. The screen saver content will reappear on the screen after

a pre-defined period of time (time out) since the device was last in the active mode, has elapsed. Thus, there is no interference to the use of the mobile device by the user.

It is a further particular feature of the present invention that, utilizing this system, the mobile operator can control and provide the contents displayed on its user's devices at any given moment. Thus, the system acts as a real mobile portal. As stated above, the content is displayed continuously, with new messages replacing the previous ones every pre-defined period of time. Broadcasting of location specific content is possible, so that each geographic area receives only content suitable for it.

Referring now to Fig. 2, there is shown a block diagram illustration of the screen saver system according to an alternative embodiment of the present invention. The embodiment of Fig. 2 describes a GSM cellular phone system, as a single, non-limiting example of suitable mobile devices having display screens which are operative in the present invention. It will be appreciated that other mobile systems, including cellular phone systems and others, can also be operative in the present invention.

The system includes an application server 40 coupled via an interface 42 directly to a plurality of CB (Cell Broadcast) channels of a plurality of BSC (Base Station Controllers) 44 or indirectly via CBC (cell Broadcasting Center) 46, and to SMSC (Short Messaging Service Center) platform 48 which is coupled to the operator's MSC (Mobile Switching Center) 50. SMS can also be used to carry remote activation and configuration commands to the users' handsets 52. BSCs 44 communicate, as known, with a plurality of cellular BTS (Base Transceiver Stations) 54, each arranged for wireless communication with a plurality of GSM cellular service subscribers' handsets 52 in a certain geographical area. .

As described above in detail, communication between the application server 40 and each BSC 44 utilizes Cell Broadcast (CB) as the publishing channel, either over an existing CBC 46 or directly through the CB channel. The CB channel can also be used for mass manipulation of users' GSM mobile devices using the STK application described in detail below, and OTA (Over The Air) technology. The system publishes its content over a specific, active CB channel with or without any

need for subscription or further activation by the user. STK (SIM Toolkit) and OTA technologies (not shown) can be used to remotely activate the CB feature on the users' handsets and set the handsets to the desired push-publishing CB channel. An STK based application is used in order to adapt GSM mobile devices to accommodate and configure the screen saver application. The STK application is transmitted to the device using either the SMS or CB channel or downloaded into a SIM by any other means.

According to one embodiment of the invention, the system has a client/server architecture. The system is based on standard software and hardware. It utilizes a standard Relational Database (RDB) 56 which may be the GSM mobile operator's database or a stand-alone database. According to the embodiment of Fig. 2, application server 40 manages the entire operation of the system, and can include any or all of the following engines utilized by the Graphic User Interfaces' (GUI) clients 58. The server's main modules are:

An enhanced scheduler engine 60 responsible for publishing the appropriate content in the required time slots;

Geographical Information System (GIS) engine 62 for providing dynamic allocation of the appropriate geographical coverage according to the requests of the content providers 64;

A rating engine 66 used for calculating the transaction charge of the requested services according to multiple criteria (volume of messages, required geographical coverage, time of day, etc.);

A billing feeder engine 68 to provide service charge data, in the appropriate format, to the GSM mobile operator's billing system for actual billing of the content providers;

A reports engine 70 used for creating statistical reports in multiple intersections; and

A log engine 72, which logs all the activities done on the system.

An Internet/Intranet based publisher client 74 is coupled to the application server 40 over the Internet/Intranet. Content providers 64 use the publisher 74 to edit

their content, select the desired time slots and geographical coverage, get the service charge and accept or reject the transaction. The publisher 74 is a GUI client 58 also to the scheduler 60 and the GIS engines 62, and utilizes rating engine 66, which all reside on application server 40. The content providers 64 are able to create reports of their activities on the system.

In order to create value for its customers, the mobile operator may choose to use the system of the present invention as a platform for its preferred value-added content. This content may be provided from a variety of third party content providers 64, e.g., newsbreaks, data quotes, weather, etc. The system allows connectivity to those push applications, coupling the content providers directly to application server 40 by suitable content plugs 76, and will publish their content in available time and location slots. The system provides an easy-to-connect Application Program Interface (API) (not shown) to facilitate fast and easy connectivity to its server. It also allows interfacing with these content applications using APIs supplied by the content providers 64.

While the design of the screen saver system of the present invention is generic, it must be integrated with the customers' specific systems. Therefore, the system provides adapters to other GSM systems in the market. The system of Fig. 2 interfaces a GSM mobile operator's system either at the BSCs 44 via an existing CBC 46 or directly on the CB channel, and at the MSC 50 via interface 42 and SMSC 48.

An administrator 78 is coupled to application server 40. The GSM mobile operator's system appointed administrator in charge of this screen saver system, uses a GUI client (not shown) of the administrator 78 to monitor the content, define automatic publishing of value-added content, query the database, define reports, explore the logs, grant authorizations, provide internal content and perform other administrative procedures.

Rating engine 66 can also be coupled to application server 40. The GSM mobile operator's business experts use the rating engine's GUI client 58 to define dynamically the desired billing model, using GUI tools, without any need for technical skills.

Operation of this embodiment of the present invention is as follows. The GSM mobile operators' authorized content providers 64, and corporate customers can publish real-time value added content via the Internet/Intranet, directly on all or selected handsets of its users. To ensure control over the content being pushed onto their networks, GSM mobile operators may screen the content provided. An authorized content provider 64 logs on to the screen saver system of the present invention (through a firewall 80 for security requirements of the system). The content provider 64 then edits messages and selects desired time slots and geographical coverage. To get the total charge, the content provider 64 then presses a "calculate" button, which activates the rating engine 62 to provide the cost to the content provider 64.

The content provider 64 is able to cancel the order or to approve it, using a customer's code. Once the content provider 64 approves the charge, the message will be displayed during the requested time slots on all active handsets of the operator's users located in the required area.

The cellular GSM mobile operator may use any unsold slots to automatically provide either its own content or to broadcast content from third party content providers (e.g., CNN) that create value for its customers.

Operating as a cellular screen saver content provider, the present system may or may not require any activation, subscription or registration on the part of the user. It is aimed at the entire mobile community, including the vast majority who have difficulty in performing operations such as sending and receiving messages. As soon as the handset is turned on, messages broadcast by the mobile operator are the first images viewed by the user, provided that his or her handset includes a screen saver application and is in the idle mode.

With reference to Fig. 3, there is shown a schematic flow chart indicating the handset setup process. The first step (block 100) is remote or local activation of the CB feature in the users' handsets using a SIM Toolkit application. A SIM Toolkit application also selects an active CB channel (block 102). This is followed by a local or remote installation of a SIM Toolkit routine for time out that may

temporarily disable CB presentation of the transmitted content whenever the GSM mobile device enters the active mode and a pre-defined period of time thereafter (block 104).

With reference to Fig. 4, there is shown a schematic flow chart indicating the operation of the system according to an alternative embodiment of the present invention. In the content provider's site, the desired content and its geographical and time slots are selected, edited, and provided to the screen saver system application server. This content is now broadcast by the GSM mobile operator using the application server over the CB channel, and is pushed onto the GSM mobile devices' display screens during the idle mode by the screen saver application (block 110). While a message is being displayed, the GSM mobile device user may contact the content provider in different ways, as by pushing specific buttons as set forth in the display on the screen (block 112). The screen saver operation is stopped when any button, except for allocated buttons, on the GSM mobile device is pushed, or when a call or SMS is received, or when the device enters its active mode (block 114). In this way, the screen saver operation does not interfere with the normal use of the GSM mobile device. It merely utilizes the normally dead screen time when the device is idle. Finally, the screen saver operation is resumed after a pre-defined period of time has elapsed (block 116).

It will be appreciated that the system according to the present invention is also compatible with the WAP (Wireless Application Protocol) and 3G (3rd Generation) standards, which will take real-time push publishing one step further, by exploiting the capabilities offered by WAP and of 3G: graphics, animation, color and video streaming. Thus, this system will let the cellular operators dictate and practically create the portals of their users to the information highway.

It will be appreciated that the invention is not limited to what has been described hereinabove merely by way of example. Rather, the invention is limited solely by the claims which follow.

CLAIMS

1. A mobile device having a display screen, the mobile device comprising: a screen saver application, said mobile device being capable of being in an idle mode.

2. The mobile device according to claim 1, wherein said display screen of said mobile device is capable of being in an idle mode.

3. The mobile device according to claims 1 and 2, further comprising a storage unit for storing said screen saver application.

4. The mobile device according to claims 1 - 3, further comprising a processing unit for utilizing said screen saver application.

5. The mobile device according to claims 1 and 4, wherein said mobile devices are cellular telephones.

6. The mobile device according to claims 1 and 4, wherein said mobile devices are GSM mobile devices.

7. The mobile device according to claim 1 and 4, wherein said mobile devices are GSM cellular telephones.

8. A data display comprising:
content received from content providers and selected for display on display screens of a plurality of mobile including a screen saver application and which are capable of being in an idle mode.

9. The data display according to claim 8, wherein said selected content is pushed remotely onto said display screens and presented thereon only while said mobile devices are in said idle mode.

5 10. The data display according to either claim 8 or 9, wherein said mobile devices are cellular telephones.

11. The data display according to either claim 8 or 9, wherein said mobile devices are GSM mobile devices.

10 12. The data display according to either claim 8 or 9, wherein said mobile devices are GSM cellular telephones.

13. The data display according to claim 9, wherein said selected content is pushed remotely onto said display screens and presented thereon only while said display screens are in said idle mode.

14. The data display according to any of claims 8 to 13, wherein said selected content is associated with a certain geographic location and broadcast substantially within said location.

15. A system for providing a data display to a plurality of mobile devices including a display screen, a screen saver application, and capable of being in an idle mode, the system comprising:

25 a server including means for selecting content to be displayed on said display screens; and

a mobile operator coupled to said server for broadcasting said selected content to said mobile devices.

16. The system according to claim 15, wherein said display screens of said mobile devices are capable of being in an idle mode.

17. The system according to claims 15 and 16, wherein said mobile devices are cellular telephones and said mobile operator is arranged to broadcast said selected content to the cellular telephones.

18. The system according to claim 15 and 16, wherein said mobile devices are GSM mobile devices and said mobile operator is arranged to broadcast said selected content to the GSM mobile devices.

19. The system according to claim 15 and 16, wherein said mobile devices are GSM cellular telephones and said mobile operator is arranged to broadcast said selected content to the GSM cellular telephone.

20. The system according to claims 15 to 19, further comprising content for broadcast received by said server from at least one content provider.

21. The system according to claim 20, further comprising software for administrating, operating, controlling and monitoring said system.

22. The system according to claims 20 and 21, wherein at least one of said software includes Internet/Intranet based publisher client coupled to said server over the Internet/Intranet.

23. The system according to claim 15 to 22, said server further including means for associating a certain geographic location with a certain content to be displayed.

24. A method for controlling a data display on display screens in a plurality of mobile devices including a screen saver application and capable of being in an idle mode, the method including the steps of:

5 broadcasting selected data display content and causing said content to be displayed on said display screens of said plurality of mobile devices only while said devices are in the idle mode.

25. The method according to claim 24, further including the step of
10 selecting content for display on said display screens of said mobile devices before the step of broadcasting.

26. The method according to claims 24 and 25, wherein said display screens of said mobile devices are capable of being in an idle mode.

15 27. The method according to claim 26, wherein said mobile devices are cellular telephones and said mobile operator is arranged to broadcast said selected content to the cellular telephones.

28. The method according to claims 24 to 26 for controlling a data display
20 on display screens of a plurality of GSM mobile devices including a screen saver application and having an idle mode, comprising the steps of:

 selecting content for display on said GSM mobile devices;

 broadcasting said content over an active Cell Broadcast (CB) channel; and

25 causing said content to be displayed on said GSM mobile devices while in said idle mode.

29. The method according to claim 28, wherein said GSM mobile devices are GSM cellular telephones and said mobile operator is arranged to broadcast said selected content to the GSM cellular telephones.

30. The method according to claims 28 and 29, further comprising the steps of:

remotely activating a Cell Broadcast feature in said GSM mobile devices;

remotely selecting an active Cell Broadcast channel;

5 remotely installing a routine for temporarily disabling content presentation by the Cell Broadcast upon entering of said GSM mobile devices into an active mode ; and,

pushing selected content over said active Cell Broadcast channel for display on the display screens of said GSM mobile devices.

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31. The method according to claim 30, further comprising the step of: providing interactive response codes in said selected content so as to permit two-way communication over said GSM mobile devices.

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32. The method according to claims 30 and 31, wherein the step of selecting content includes selecting content to be displayed according to geographical location of said GSM mobile devices.

33. The method according to claim 30 to 32, further including the step of
20 using STK applications.

34. The mobile device according to any of claims 1 to 7, and substantially as shown and described herein above with reference to Figs. 1 - 4.

25 35. The mobile device according to any of claims 1 to 7, and substantially as illustrated in any of Figs. 1 - 4.

36. The data display according to any of claims 8 to 14, and substantially as shown and described herein above with reference to Figs. 1 - 4.

30

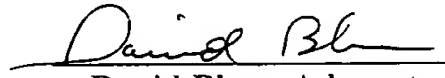
37. The data display according to any of claims 8 to 14, and substantially as illustrated in any of Figs. 1- 4.

38. The system according to any of claims 15 to 23, and substantially as shown and described herein above with reference to Figs. 1 - 4.

39. The system according to any of claims 15 to 23, and substantially as illustrated in any of Figs. 1- 4.

40. The method according to any of claims 24 to 33, and substantially as shown and described herein above with reference to Figs. 1 - 4.

41. The method according to any of claims 24 to 33, and substantially as illustrated in any of Figs. 1- 4.


David Blum, Advocate
AGENT FOR APPLICANT

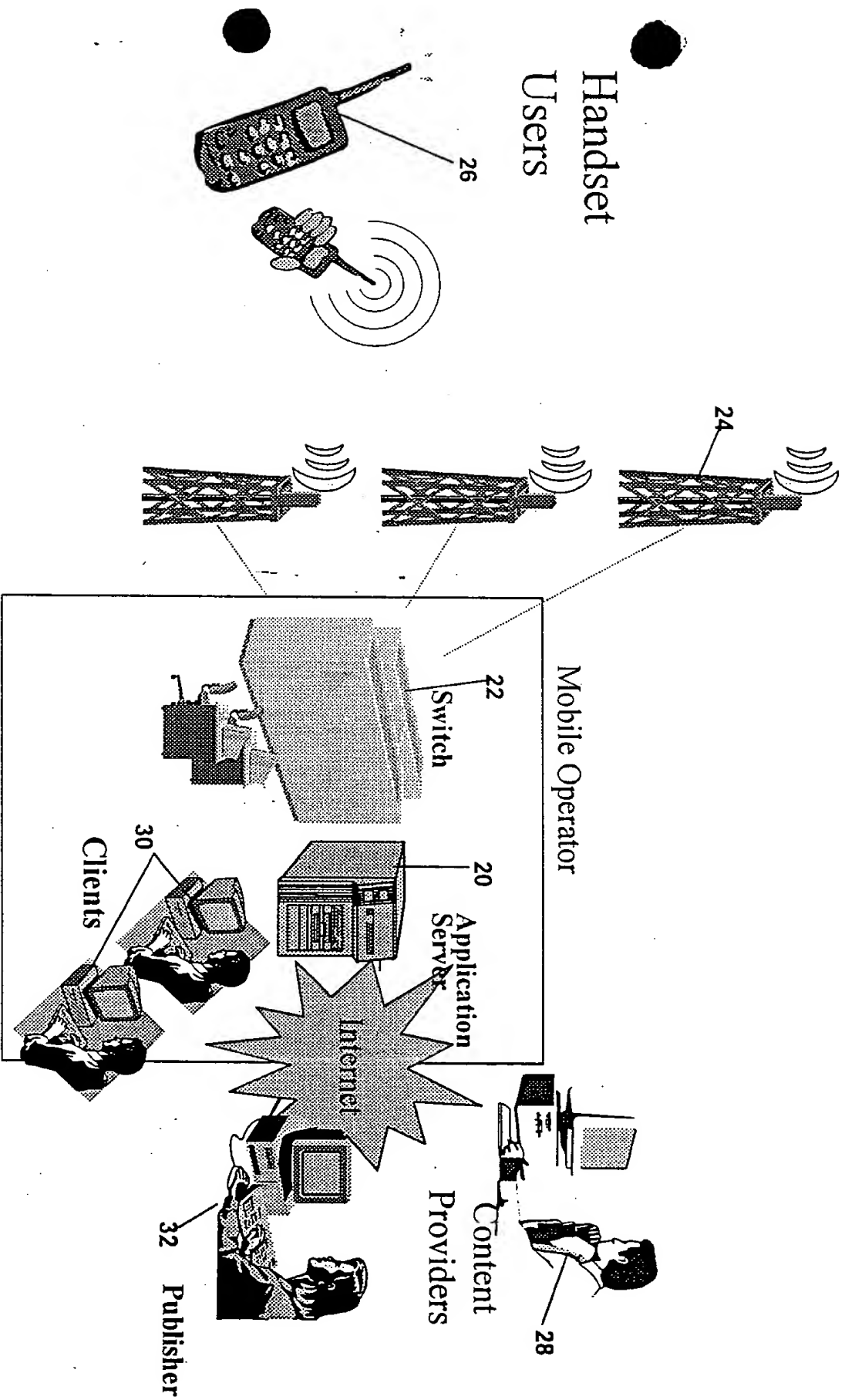
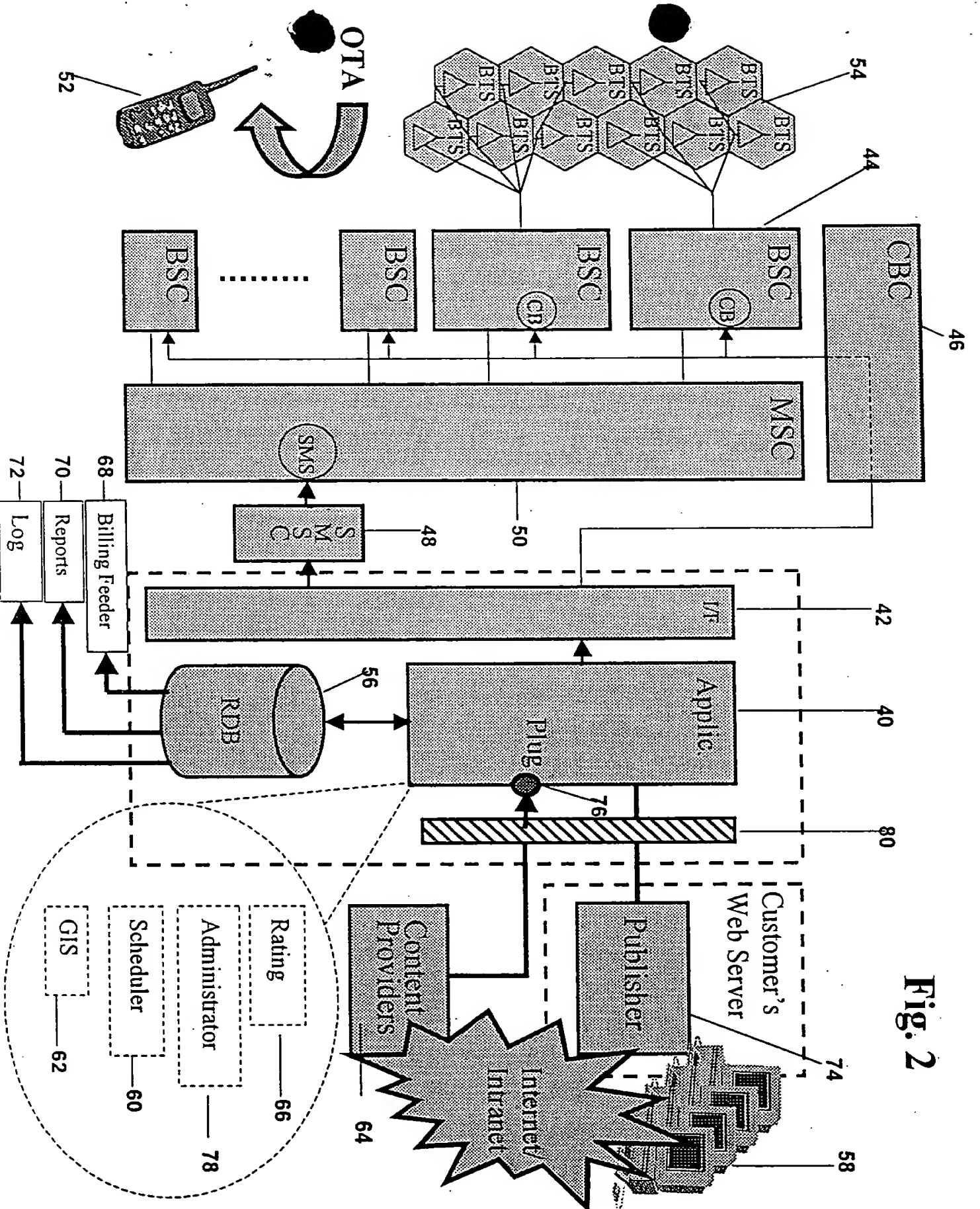


Fig. 1

Fig. 2



Handset setup

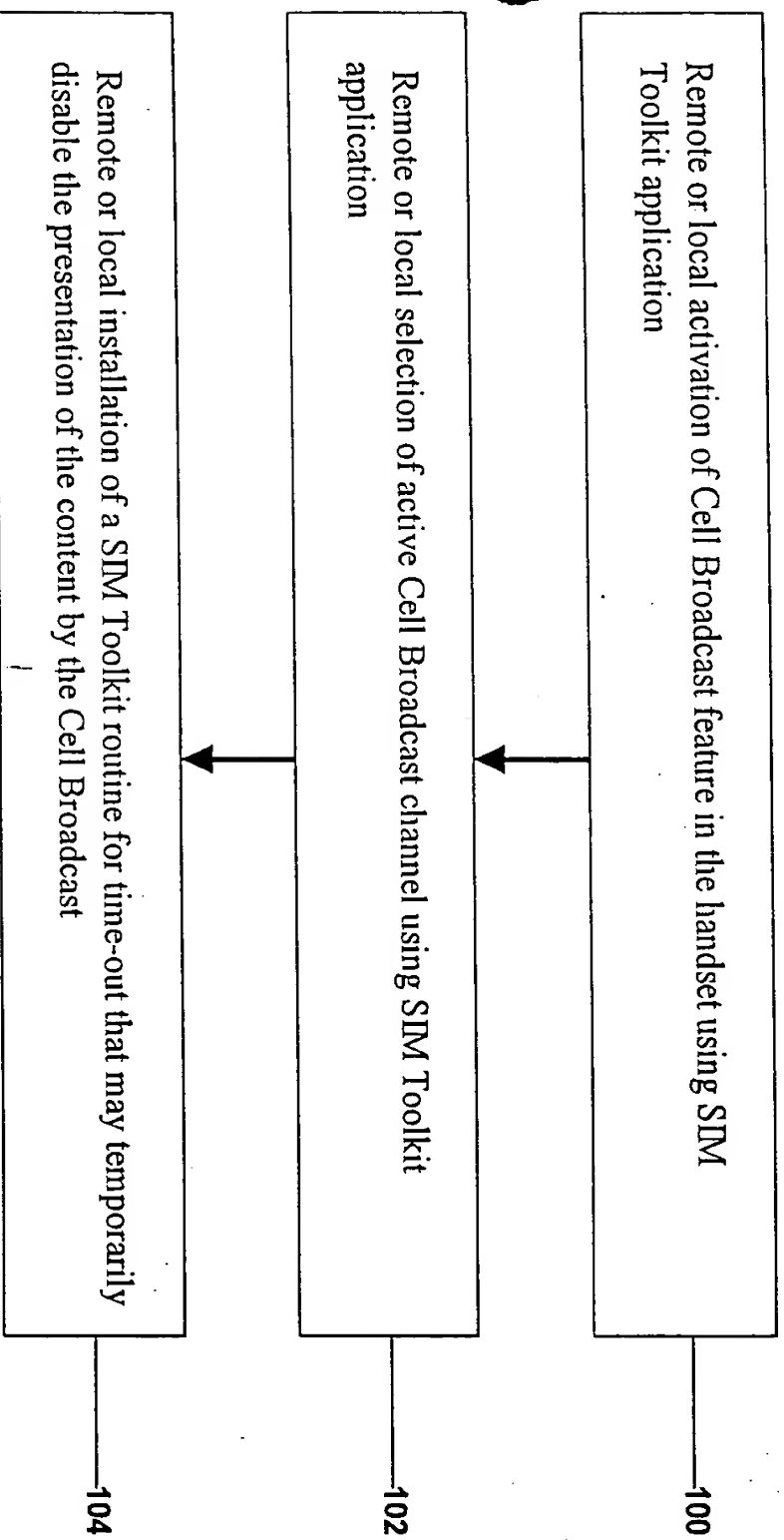


Fig. 3

Operation

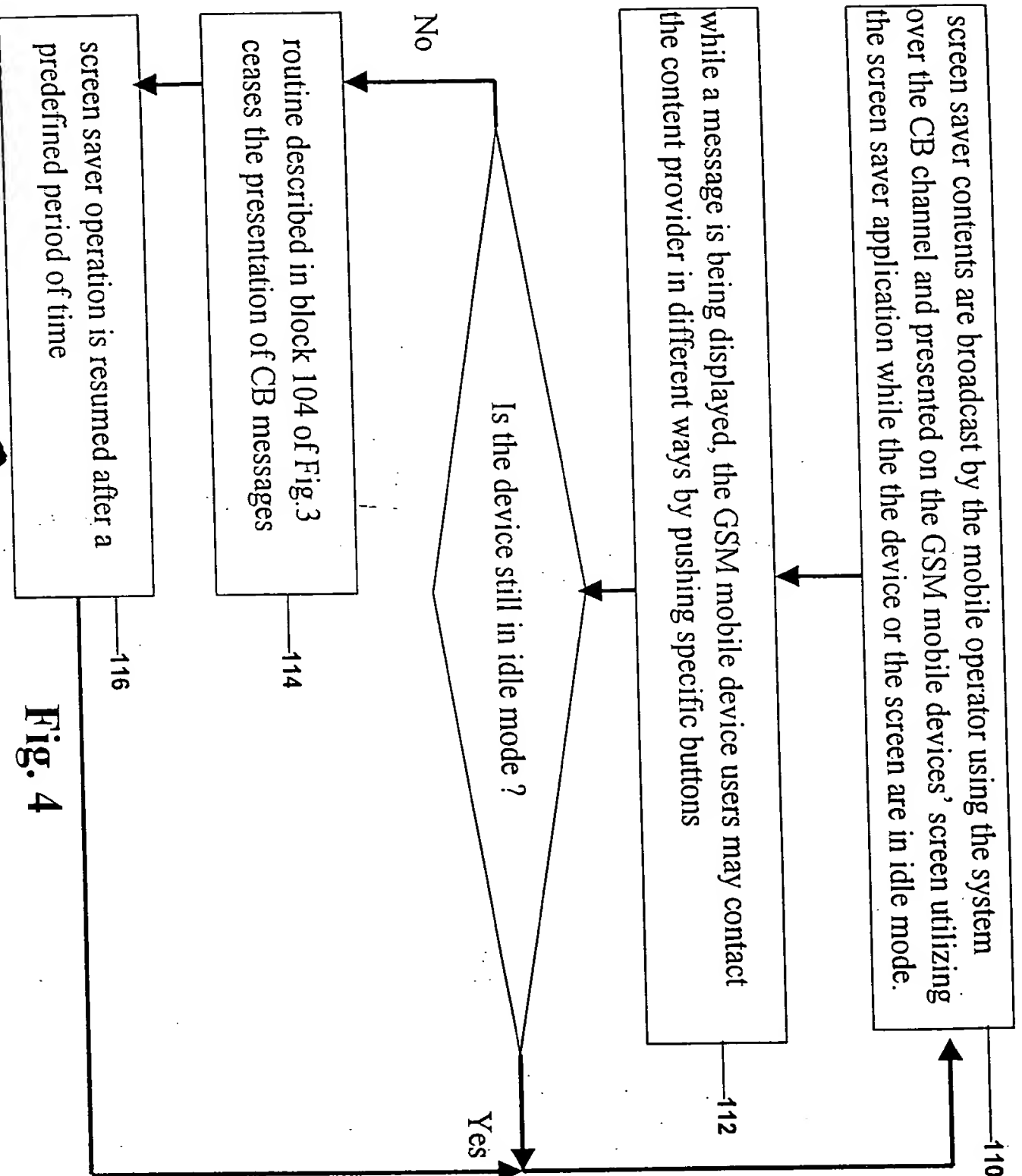


Fig. 4

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